got sams?

***PREFACE***

Many college students are surprised by the demands placed on them to be organized and disciplined in college, and surprised again by the internal resources they don’t know they are missing to meet these demands.  Metacognition is the key. There are multiple elements that interact: confidence (or self-efficacy) is only one of these elements. Many students in community college lack confidence because they have never been given the tools to achieve deep learning. They are “stuck” at a superficial level, and don’t take the time to reflect on their work. The big point here is that ***you can’t change what you are unaware of***. There are many instruments that can help students evaluate their readiness to change, their self-efficacy beliefs as a learner, and where they are in evaluating the pros or cons of changing. Faculty can assess students’ mindset – whether they are fixed or growth and how that may be impacting their readiness to change, to learn, and to become effective learners. The data are clear that fixed and growth mindsets exist, and they shape student attitudes and behaviors. The goal is to assess (or more properly to ask students to assess) where they are so that they can make more informed decisions and interact in a more effective way. This allows an instructor to better understand the learning behaviors he/she is seeing in the classroom.

It is not a simple thing to understand student resistance or lack of motivation. Many times we fall back on simple explanations like, “those students are just lazy,” or “they should have learned that in high school.” The truth is much more complex than that. We often ascribe their behaviors to internal traits while ignoring the contextual and environmental factors that are present (see Fundamental Attribution Error in the appendix for more information).

We can also measure their deep and surface approaches to learning and feed that information back to them. Many faculty see positive results with regular feedback. Once students see where they are they can also see where they need to change.

The purpose of this work is to increase student engagement, improve student preparation for post-secondary success, and improve mathematical understanding in the pre-college math classroom. In order to do this, our group has developed a practical document for faculty use to access and utilize meaningful curricular activities through the implementation of lessons based on the four Student Attributes from the College Readiness Standards.

The Student Attributes for College Readiness are:

* Demonstrates intellectual engagement
* Takes responsibility for own learning
* Perseveres when faced with time-consuming or complex tasks
* Pays attention to detail

These attributes are essential to successful completion of any college course, regardless of discipline or level. Students begin developing these characteristics early on in their academic career, but often at varying levels of skill. Math, in particular, places a premium on these attributes and many students find they are in need of enhancement in one or more of these areas.

To be effective, improvement efforts need to address a student’s mindset as well as an understanding by faculty that there is a shared responsibility where student success is concerned.

Our group has developed lessons that address creating a learning environment where students have a greater awareness of their own behavior and learn how to become masters of their own learning.

These involved lessons consist of activities focused on increasing motivation, affect and persistence as well as include additional resources and research. While we recommend each of the activities, we recognize that incorporating all of them in a 10-week quarter could be overwhelming, and quite optimistic for a new practitioner. Our recommendation is that at a minimum you choose the Growth Mindset activity, and ask students to review their responses to the prompts at the end of the term to chart progress. We also recommend viewing the following video with David Yeager.

<http://www.carnegiefoundation.org/developmental-math/student-success-and-productive-persistence>

This document is the work of members of the Student Attributes for Math Success (SAMS) Practioner Group. Thanks to everyone who contributed ideas and activities:

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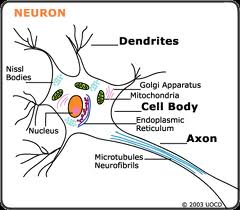
**Lesson Eight:** Anxiety Control

**Appendix**

# Lesson One: Growth Mindset

“Simply learning about the growth mindset seems to mobilize people for meeting challenges and persevering.” Dr. Carol Dweck

C:\Users\mbalachowski\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\J7WQ8J19\MC900055181[1].wmf**You Can Grow Your Intelligence**  
***New Research Shows the Brain Can Be Developed Like a Muscle***

Many people think of the brain as a mystery. They don't know much about intelligence and how it works. When they do think about what intelligence is, many people believe that a person is born either smart, average, or dumb — and stays that way for life.  
  
But new research shows that the brain is more like a muscle — it changes and gets stronger when you use it. And scientists have been able to show just how the brain grows and gets stronger when you learn.  
  
Everyone knows that when you lift weights, your muscles get bigger and you get stronger. A person who can't lift 20 pounds when they start exercising can get strong enough to lift 100 pounds after working out for a long time. That's because the muscles become larger and stronger with exercise. And when you stop exercising, the muscles shrink and you get weaker. That's why people say "Use it or lose it!  
  
But most people don't know that when they practice and learn new things, parts of their brain change and get larger a lot like muscles do when they exercise.  
  
Inside the cortex of the brain are billions of tiny nerve cells, called neurons. The nerve cells have branches connecting them to other cells in a complicated network. Communication between these brain cells is what allows us to think and solve problems.   
  
When you learn new things, these tiny connections in the brain actually multiply and get stronger. The more that you challenge your mind to learn, the more your brain cells grow. Then, things that you once found very hard or even impossible to do — like speaking a foreign language or doing algebra — seem to become easy. The result is a stronger, smarter brain.  
  
**How Do We Know the Brain Can Grow Stronger?**  
Scientists started thinking that the human brain could develop and change when they studied animals' brains. They found out that animals that lived in a challenging environment, with other animals and toys to play with, were different from animals that lived alone in bare cages.  
While the animals that lived alone just ate and slept all the time, the ones who lived with different toys and other animals were always active. They spent a lot of time figuring out how to use the toys and how get along with the other animals.  
  
These animals had more connections between the nerve cells in their brains. The connections were bigger and stronger, too. In fact, their whole brains were about 10% heavier than the brains of the animals that lived alone without toys.  
  
The animals who were exercising their brains by playing with toys and each other were also "smarter" — they were better at solving problems and learning new things.  
  
Even old animals got smarter and developed more connections in their brains when they got the chance to play with new toys and other animals. When scientists put very old animals in the cages with younger animals and new toys to explore, their brains grew by about 10%!  
  
C:\Users\mbalachowski\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\95H2BO2L\MC900057416[1].wmf**The Key to Growing the Brain: Practice**  
From the first day they are born, babies are hearing people around them talk — all day, every day, to them and to each other. They have to try to make sense of these strange sounds and figure out what they mean. In a way, babies are exercising their brains by listening hard.  
  
Later, when they need to tell their parents what they want, they start practicing talking themselves. At first, they just make goo-goo sounds. Then, words start coming, And by the time they are three years old, most can say whole sentences almost perfectly.  
  
Once children learn a language, they don't forget it. The child's brain has changed — it has actually gotten smarter.  
  
This can happen because learning causes permanent changes in the brain. The babies' brain cells get larger and grow new connections between them. These new, stronger connections make the child's brain stronger and smarter, just like a weightlifter's big muscles make them strong.  
  
**The Real Truth About "Smart" and "Dumb"**  
No one thinks babies are stupid because they can't talk. They just haven't learned how to yet. But some people will call a person dumb if they can't solve math problems, or spell a word right, or read fast — even though all these things are learned with practice.  
  
At first, no one can read or solve equations. But with practice, they can learn to do it. And the more a person learns, the easier it gets to learn new things-because their brain "muscles" have gotten stronger!  
  
The students everyone thinks are the "smartest" may not have been born any different from anyone else. But before they started school, they may have started to practice reading. They had already started to build up their "reading muscles." Then, in the classroom, everyone said, "That's the smartest student in the class."  
  
***These students don't realize that any one of them could learn just as well if they had exercised and practiced reading as much.***

Remember, all of those other students learned to speak at least one whole language already — something that grownups find very hard to do. They just need to build up their "reading muscles" too.  
  
**What Can You Do to Get Smarter?**  
Just like a weightlifter or a basketball player, to be a brain athlete you have to exercise and practice. By practicing you make your brain stronger. You also learn skills that let you use your brain in a smarter way-just like a basketball player learns new moves. But many people miss out on the chance to grow a stronger brain because they think they can't do it, or that it's too hard. It does take work, just like becoming stronger physically or becoming a better ball player does. Sometimes it even hurts! But when you feel yourself get better and stronger, it is worth it!



**Activity: THIS IS WHERE WE NEED TO DEVELOP SOME PROMPTS FOR STUDENTS TO RESPOND TO…AN ALTERNATIVE IS A FREE RESPONSE ESSAY (1 PAGE, MAYBE) ON HOW STUDENTS REACT TO THE READING. SHOULD IT BE FOLLOWED UP AT THE END OF THE TERM WITH A RE-WRITE?** I think it is a good idea to have a pre and post reflection to this article. I think 3 or 4 prompts would be helpful, especially for the one at the beginning of the quarter. Do you need help with this? I think you did a great job writing the article. ( I enjoyed reading it )

Develop an assignment asking students to read and respond to the "Growth Mindset" article.   
 I am not sure about the rest of this page and how this fits in to the “Growth Mindset”

1. Persistence
2. Confidence
3. Life Skills
4. Healthy Habits

* How many people do you know that are living their whole dream? Living just part of their dream?
* Probably not living any of their dreams?
* Why do so many people end up so far away from their dreams?
* What are strategies to navigate around dream thieves?
* How can you keep your dream louder than their message?
* What natural strengths do you already have, that can build your dream to become who you really are?

**Resources:**

**You can Grow your Brain**

http://homepage.psy.utexas.edu/homepage/faculty/Yeager/gm.pdf

**Yeager essay:**

http://pathways.carnegiefoundation.org/what-we-are-learning/2011/there-is-more-to-college-success-than-test-scores-and-lesson-plans/

**Yeager video: "What We're Learning about Productive Persistence":**

http://www.carnegiefoundation.org/developmental-math/what-we-are-learning-about-productive-persistence

**Kay Merseth article is great summary:**

http://www.carnegiefoundation.org/statway/statway-resources

Citations:

# Lesson Two: Responsibility, Goal Setting, and Self-Evaluation

**Objective**:

By the end of this lesson, the student will be able to take responsibility for his/her own learning. This lesson can be taught in any developmental math course and is not content specific.

**Purpose**:

Taking personal responsibility is the key to being successful in college and in life. By taking responsibility, a student will be more involved with their college education. Part of taking responsibility is setting goals, monitoring them, and revising them as necessary.

**Brief Description of Activity**:

This three part curriculum has students work through activities focused on responsibility, goal setting, and self-evaluation. Activities will only require that part of a class period is used, with additional time spent outside of class.

**Materials Needed:**

• Reading assignment: “Responsibility and Mathematics” or journal article

• Case Study and “Character” worksheet

• “Math Responsibilities and Goal Setting” worksheet

• Goal Setting Activity Plan (and included worksheets)

• Self Evaluation Activity Plan (and included worksheets)

**Sequencing Recommendations**:

The responsibility and goal setting activities should be implemented closely together at the beginning of the quarter (allowing a few days to pass to build some trust with students is recommended) with the self-evaluation activity coming after the halfway point of the quarter ( at least 2-3 weeks after the goal setting activity ). Please remember that this sequencing is only a recommendation.

**Research/Resources:**

• “On Course” by Skip Downing

**PART I: Responsibility**

**Day 1**: Begin with either an article written by an expert or the handout entitled “*Responsibility and Mathematics*”.

Option 1: Send home with students to read on their own. ( no class time required )

Option 2: Have students get into groups (3-4) and read the article or handout together and discuss it. (10-15 min )

**Day 2**: Case study involving responsibility

1. Read the case study “*The Missed Test*” to the class (5 min)

2) Have students individually rank who is most responsible on a scale of 1 to 6 using the handout “Characters”. (3 min )

3) Form groups of 2-3 students to discuss your rankings and why you chose the following.

Have students try to reach consensus on: (10 min)

a) Most responsible person and why

b) Second most responsible person and why

c) Least responsible person and why

4) Discuss with the large group the rankings or have students write up their 3 choices and reasons for selection. (10 min)

5) I like to collect the handouts that students fill out fill out for this and summarize the results.

**Day 3:** Create responsibility List

1. Individually list what it means to be responsible in this math class. (3 min)
2. Get into groups of 3 and discuss your lists, add to them if you missed something (5 min)
3. Each group shares out 2 responsibilities for the group and instructor writes on board. (5 min)
4. After all groups have reported, ask if anything is missing from the list and add to list
5. Ask a note taker to write down the list for you or take a picture of the board and after class type it up for distribution to the class.

**Day 4**: Writing Assignment

1. Provide students with the brainstormed list created by the group on Day 3.
2. Handout the writing assignment: “ *Math Responsibilities and Goal Setting*”

-Allow a week to complete

-Have students turn in the assignment or you may consider having them submit it electronically.

**Note:** This part of the lesson can be completed in 4 consecutive days or over a longer period of time.

**PART II: Goal Setting**

**Day 5:** After students complete the “Math Responsibility and Goal Setting” worksheet, they are ready to participate in the Goal Setting Lab.

1. Hand out the “*What about goals”* handout and have students read through it ( 5 min )
2. Students should get into groups of 3 and complete the card sorting activity (10 min)
3. Have each student write a specific goal they have for the class on an index card and have them share with the group and categorize it. ( 5 min)  
    \* Be sure to collect these

Extension: Have students go back and revise their goals from their responsibility writing assignment and classify them. (

**PART III: Self-Evaluation**

**Week 3 or 4**: At this time have students review their writing assignment done earlier in the quarter and have them reflect on how they are doing.

* 1. Hand out “*Self-Evaluation of Goals*” worksheet.   
      \*NOTE: This worksheet has 2 pages.

Extension: Have students complete this activity at the end of the quarter.

Responsibility and Mathematics

Mathematics is the cornerstone for any college degree. Often this subject is also a stumbling block for many students trying to obtain a degree or certificate in a community college. Several years ago, community college math teachers in Washington state developed the college readiness math standards which state the important concepts every student should know to be successful in college level mathematics. They also agreed on four student attributes that they feel are important to success in college mathematics. One of these is to take responsibility for your own learning. So what exactly is responsibility? It is a word that many of us do not like or want to hear.

The word “responsibility” has many definitions. Dictionaries list the following: 1) the obligation to carry forward an assigned task to a successful conclusion 2) the ability or authority to act or decide on one's own, without supervision 3) able to choose for oneself between right and wrong. This last definition is one that ties in with Skip Downing’s view of responsibility for college students. When faced with a situation, he says you can choose to be either a “Creator” or a “Victim”. A **creator** is someone who is able take something bad and learn from it or someone who changes their behaviors to obtain a positive result instead of a negative one. A **victim** is someone who, when faced with something bad, blames it on someone else or keeps trying the same thing over and over again, somehow expecting the result will be different. For example, suppose you get a test back and you receive a 63% on it. ( not exactly the grade you wanted! ) A creator would look through their test to see what they missed and ask for help in correcting their mistakes. A victim might blame the teacher for writing a hard test and wad up the test and throw it in the garbage.

Taking personal responsibility is the key to being successful in college and in life. Choices are the foundation of responsibility. You will encounter many choices every day, will you be a creator or a victim? Taking responsibility for your actions will allow you to be more involved in your college education. Don’t expect things to just happen; be involved with your education. “With responsibility goes authority to direct and take the necessary action to ensure success.” (Free dictionary, online)

The following is a quote that I hope you will make your own:   
“Whether I fail or succeed shall be no man’s doing but my own. I am the force…. My choice; my responsibility; win or lose, only I hold the key to my destiny.”  
 Elaine Maxwell

CASE STUDY: The Missed Test  
by Brent Pickett, MiraCosta College

**Professor Hepatea** announced that her self-paced math course consisted of 9 tests and a final. In her syllabus she told students that tests could only be taken from 9:00 am to 8:00 pm, and that students may not start a test after 7:00 pm. Before taking the written test for a grade, each student must pass a computerized practice test with at least a 70%. In addition, a student who missed a test deadline could be dropped from the course.

**Jane** had a history of doing well in most classes, but struggled with Math. She found the self-paced class to be working for her because she could work at home. Jane held an “A” average through the first 3 tests, but often found herself taking the practice test and the written test on the day of the deadline. For some chapters she had to take the practice test twice before passing it at 70%. This math class was her last requirement before she transferred to Movinon University.

**Albert**, Jane’s husband, worked hard at his job, trying to move up the ladder in the computer company he worked for. He often arrived at home at night just to say hi, give Jane a kiss, and sit down at the computer to work late into the night.

Albert was working on a project that had a deadline of March 15th.   
**Dilbert**, Albert’s boss, had told him that not meeting the deadline would have serious consequences and could lead to a downsizing of the department. This pressure lead to Albert’s ignoring Jane, and there was tension developing in their marriage. Jane found concentrating on school was becoming more and more difficult.

Jane was able to complete her homework but received a grade of only 65 on per practice test a week before her test deadline. Driving to school the next day with **Shelly**, her classmate and car-pool friend, Jane told Shelly how the class was going. Shelly responded, “I got an 85 on this chapter, but once got a 60 on a practice test, and they never checked the score. I was still able to take the real test. I don’t think you’ll have any problem with a 65.”

A week later, on the test deadline, Jane and Shelly arrived at the college at 4:00 pm to take their test. Not wanting to take the test on an empty stomach, they went to the cafeteria to get something to eat. As they ate, they went over questions they thought would be on the test.

At 5:30 they went to the Math Learning Center to get their last few questions answered. After getting them answered, at 6:15 they came to the window to start the test. **Dave**, the Instructional Aide, saw that Shelly had an 85 on her practice test and issued her a written test. Jane stepped up to the window and Dave looked up her practice test score. Seeing a 65, Dave told her she needed a 70 and refused to give her a test. Jane told Dave about the 60 that Shelly had gotten on a previous practice test, but that did not persuade him to issue her a written test. Dave told her to quickly take the practice test and come back.

Jane retook the practice test and got a 75, but when she returned to the window, it was 7:15, past the starting deadline, and Dave would not give her a test. The next day Professor Hepatea dropped Jane from the class.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Characters**

Listed below are the characters in this story. Rank them in order of responsibility for Jane’s being dropped from the class. Give different scores to each character ( 1 being most responsible, 6 being least responsible). Be prepared to explain your choices.

Professor Hepatea, the teacher Dilbert, Albert’s boss

Jane, the math student Shelly, Jane’s classmate

Albert, Jane’s husband Dave, an Instructional Aide

Explain why you selected the person you selected as being most responsible:

**What about goals?**

*Goals provide students a set of personal standards by which they can judge the outcomes of their learning attempts. These standards also have the effect of motivating and encouraging students during their learning as they are able to more accurately gauge the progress of their understandings (Bandura,1986).*

|  |
| --- |
| **Performance Goals:** Performance goals refer to goals set with a focus on the **outcomes** of educational efforts (Hagen & Weinstein, 1995). Examples of performance goals in mathematics may include desired course grades, homework scores, and exam scores.  **Mastery Goals:** Mastery goals refer to goals set with a focus on the learning or mastery of concepts (Hagen & Weinstein, 1995). Goals of mastery are goals for certain **levels of understanding** in specific mathematical concepts or comfort in applying new mathematical procedures to real life situations. |

A mastery goal has the effect of prompting students to seek challenges instead of avoiding them and motivates them to put forth more effort into their learning (Hagen & Weinstein, 1995). Also, the evaluation of a student’s progress towards completing mastery goals is not dependent on the assessment of homework and examinations. These types of goals empower students to accurately self-monitor their progress towards their goals and this monitoring is not dependent on the evaluation of someone else (i.e. - the instructor), as is the case with performance goals.

**Characteristics of effective goals**

|  |
| --- |
| ***Measurable*** – To be prepared to accurately evaluate one’s progress, goals must have a sense of measure to them. Example “I will feel comfortable with and understand each type of problem presented in section 2.5” or “I will be able to complete any type of fraction problem whether it is addition/subtraction or multiplication/division.”  ***Proximal*** – Long-term and short-term goals are both important but proximal (short-term) goals offer themselves to evaluation more easily and therefore are more motivating.  ***Specific*** – This aids with a goal being measurable. Specific goals provide very strict direction to your education.  ***Realistic*** – If you can’t reach a goal that you set for yourself you will begin to view your goals as unattainable references and therefore sapping the usefulness of setting goals in the first place. |

Sources:

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* New Jersey: Prentice-Hall.

Hagen, A. S., & Weinstein, C. E. (1995). Achievement goals, self-regulated learning, and the role of classroom context. *New Directions for Teaching and Learning*, 63, 43-55.

**Goal Setting - Card Activity**

**Overview:** This activity should take place after students have shared in groups about their goals and read through the What About Goals? document. This simple activity asks them to sort through different goal statements, determining whether the goal listed is a performance goal or a mastery goal.

**Activity Prep:** Create cards (index cards or cut from a printed sheet) with one of the following statements on each card. You are encouraged to create some of your own statements that relate better to your course. Each group should be handed a set of these cards during the collaborative lab.

“I hope to get an A in this class.”

“I have been away from school for 10 years and would like to become comfortable again doing math.”

“I just need to pass this course so that I can get into the chemistry course I need for my major.”

“I would like to understand how fractions work and how they are use in the real world.”

“I want to do well on tests. I have math anxiety and don’t test well.”

“I don’t need to get an A in this course I just want to pass!”

“I have never done math by hand. I always use a calculator. I would like to know how to multiply and divide decimals by hand.”

“I would like to be good at Algebra and understand it! In high school, I passed my algebra course, but didn’t understand what I was doing.”

**Activity:** Hand each student a blank card and ask them to write the goal they shared with the group on the card. Add these cards to the set you have developed for them. Ask the group to work together in sorting the goal statements between performance goals and mastery goals

**Self-Evaluation of Goals** Name

Answer each of the following questions honestly. This exercise is for you to reflect on your goals and make any necessary changes. Feel free to discuss any concerns with your instructor.

1. What were your goals for this quarter?

Goal 1:

Goal 2:

1. Now that we are four weeks into the quarter, how would you rate yourself on a scale of 1-10 on your progress towards these goals.

Goal 1:

Goal 2:

1. What specifically has helped you to achieve your goals?
2. What specifically has hindered you as you have attempted to make progress towards your goals?
3. What is your current grade in the course? (directions given)

Is it the grade you hoped to have? Why or why not?

**Directions for computing grade to date here:**

**VERSION 2**

**Student Attribute Curriculum – Goal Setting**

**Student Prep:** Complete the *Math Responsibilities and Goal Setting writing assignment.*

**Activity Length:** 10-20 mins for Collaborative Lab, depending on group size. 10 mins for card sorting activity. 10 mins for class debrief.

**Collaborative Lab:** Students should be split into groups (3-5 in each group) and given the *Collaborative Lab - Goal Setting* instruction sheet. The sheet has students informally discuss who they are, why they are enrolled in this math course, and the most important goal they have for the quarter.

**Instructor’s Role:** You should be available and interested as the groups share with each other, but be sure not to hover over any one group too long. This is a chance for the students to get to know each other and their motivations for being enrolled in your math course.

Students will be asked to pause after their initial sharing. This pause is meant as a chance for you to check that everyone feels they have been involved in the sharing and ask any important questions that may have come up during their conversation. Before you leave the group, you should hand them a copy of the “What about goals?” document and ask someone to read it to the group. This is also a good time to hand them their stack of goal statement cards (see card sorting activity below).

**Debrief:** Using the “What about goals?” document below, discuss the reason for having goals and the attributes of powerful and useful goal setting. *Students will be asked to edit their writing assignment by ensuring that the goals they have developed are: specific, realistic, measurable, and proximal.*

**STUDENT WORKSHEET: Collaborative Lab - Goal Setting**

*Note: Choose one person in your group to the facilitator. It is their job to read these instructions aloud to the group.*

**The following steps are designed to give your group a chance to get to know one another and give you each a chance to talk about the goals you have for this math class. Please be as honest as you are comfortable being in this setting.**

1. Find your group (obviously if you are reading this you have completed the first step).
2. Beginning with the person who’s birthday is closest to today, go clockwise around the group with each person sharing:
   1. Their name
   2. The reason they are in school at [enter school name here] and specifically why they are enrolled in this math class.
   3. The most important goal they have for the quarter.

*This is a chance for you to get to know one another in your group. If you would like to talk about something not on the list above feel free! Remember to be equitable with the group’s time. Full participation during this activity requires that you not only talk about yourself, but also listen well (feel free to ask questions!).*

**Let your instructor know when you have completed the first 3 steps before continuing…**

1. Answer the following question (for each person) below the line on this worksheet:

“What, specifically and realistically, are you going to do this week to work toward the goals you have for this course?”

**Responsibility and Goal Setting**

Please read **Responsibility and Mathematics** and then turn over and read the description of a short writing assignment. There is a discussion board on **Angel** (or whatever LMS you use) for you to complete. You will be asked to make 2 submissions: The first posting will be one or two personal goals. Please note the due dates for your submissions! After reading the submissions of your classmates, review ***your*** goals and make any changes to your own goals. Please read those directions on Angel **ASAP!** You should also view a video (see below for the URL, or you can link to it directly from the announcement page on Angel) to prepare for the discussion and writing assignment (see next page).

<<http://www.10rulesforsuccess.com/?cm_mmc=CheetahMail-_-MO-_-09.19.11-_-GOLSmovie&utm_source=CheetahMail&utm_campaign=GOLSmovie>>

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Math Responsibilities and Goal Setting**

**Writing Requirement Details:**

* Typed
* Double-Spaced
* 12 point font
* 1 inch margins
* Full Name on Top left Corner
* Edited for clarity and correct grammar, punctuation, spelling and sentence structure.
* 1 – 2 pages (papers less than 1 page will not be eligible for full credit)

**Writing Prompt:**

From the list of Math Responsibilities brainstormed on class discussion board, choose two areas for which you want to set goals for the quarter. **Clearly identify at least two goals** you are setting including **why you chose each goal for yourself** and the **benefit(s) you will get from accomplishing each goal**. Also, **for each goal, explain in detail at least 2 specific actions** you will take in order to achieve the goal. At the end of the quarter I will ask you to revise this paper to determine whether you have accomplished the goals you have set for yourself or, if you have changed your goals, what your new goals are.

**Assistance:**

You can find information on study skills in your math textbook and on thousands of websites. You may use this to help formulate your ideas, but need to put all writing in your own words (do not copy from a book or a website) and personalize ideas to your own situation. You might also get inspiration from the Responsibility handout on the previous page or from the Angel discussion board.

If you need help in editing your paper, you can make use of the Writing Center or your fellow classmates.

***Do not wait until the last minute…problems getting help editing/printing could cause you to lose points if your paper is not ready to turn in at the start of class on the due date.***

**DUE DATE:**

**GOALS**

**Self-Evaluation of Goals**

**Student Prep**: Students should complete the Self-Evaluation and Grade Calculation worksheets before coming to class. Each instructor will supply their students with a Grade Calculation sheet based on their own grading rubric.

**Collaborative Lab**: Students should be placed in the same groups they were for the Goal Setting Lab. Have students work through the Self-Evaluation - Collaborative Lab instructions. Students talk in groups about their responses to the questions on the self-reflection worksheet. You may structure this conversation for groups that are having trouble sharing, but they should have plenty to talk about. Students talk about the calculation of their grades and are asked to answer questions about what grades they can still obtain (a nice, useful, and interesting application of algebra). The concept of goal setting and their important attributes is revisited from the Goal Setting Lab.

**Debrief:** This is a good time to reflect on the quarter for the students (and the instructor). Help them keep up their motivation and effort by asking them to revisit why they are in school, who it affects, and what they need to do to be successful. Since this lab is very introspective and personal a full class debrief may not make sense for your students.

Students will be asked to write down another goal (or two) in response to their evaluation of their goals. Students should be reminded that having realistic and measureable goals is incredibly important.

**Self-Reflection Worksheet**

**Instructions:** Answer the following questions as completely as possible.

What were your goals for this Quarter?

Now that we are four weeks into the quarter, how would you rate yourself on a scale of 1 – 10 on your progress towards those goals?

What specifically has helped you to achieve your goals?

What specifically has hindered you as you have attempted to make progress towards your goals?

What is your current grade in the course (see Grade Calculation Worksheet)? Is it the grade you hoped to have? Why or why not?

**Self-Evaluation - Collaborative Lab**

Instructions:

1. Starting with the person sitting the closest to the door, summarize your self-reflection worksheet to the group. Be sure to share the rating you gave yourself (1-10) and what factors influenced this rating.

2. After everyone has shared their self-reflection worksheet, begin to talk about your grades in the course. Be sure that everyone has calculated their grades correctly. Ask your instructor for help if you are having trouble with this step.

3. Finally, going clockwise around the group, share a new goal that you have for the quarter. Be sure this goal is realistic and something that you can measure. If you are having trouble creating a goal, ask the other members of the group to help you with this.

4. Write this new goal down and hand it to your instructor at the end of the lab.

# Lesson Three: Productive Struggle

**Asking Different Questions to Get Different Results:**

**Simple Actions with big Impact**

**What are some repeatable practices that support students engaging in productive struggle?**

An instructor put a question on a test with the expectation that given what had been taught and emphasized in class, many students would answer the question correctly. In actuality, very few students even attempted the question. The instructor was puzzled. The answer to this question had been presented in lecture. The question was even placed on a study guide for the test. Why did so many students skip it? The only conclusion was that students did not know how to answer this question, or what the questions was asking, or did not understand the concepts the question was attempting to assess. This conclusion lead to the next question: “What specific opportunities did students have in class to make sense of this idea?”

Research shows that productive struggle is an essential element of learning. Further inquiry into research reveals what productive struggle looks like in the classroom. Here are two representations from researchers in the field:

*Students’ productive struggle refers to students’ “effort to make sense of mathematics, to figure something out that is not immediately apparent” (Hiebert & Grouws, 2007) as opposed to students’ effort made in despair or frustration*

*“The focus of the productive struggle is on the mathematical learning goals embedded in the problem or situation — it’s not about guessing what the teacher wants to hear or about finding a particular answer. It is about the* process of thinking*, making sense, and persevering in the face of not knowing exactly how to proceed or whether a particular approach will work. Exploring, investigating one or multiple approaches, and articulating a chain of reasoning behind the approaches also characterize productive struggle.” – Kay Merseth*

The instructor took the initial question and definitions of productive struggle to colleagues to consider how to improve student outcomes. After a discussion with colleagues, four ideas were suggested to change the demand of the task. These retooled questions were then given in class where students had a supportive atmosphere to deliberate and share their thinking. Below is the initial question:

*In the space below, draw a brief sketch to represent an inconsistent 2x2 linear system.*

Next are four approaches to restate a question that alter the demand of the task from stating the answer into reflecting, communicating, and making sense of mathematical ideas. After looking at these rewrites, you might have your own ideas about simple actions that will have big impact. These questions posed in class led students into deeper dialogues and engaged students in the ideas and concepts of the unit.

Here are the four suggestions for restatement:

1. **Consider the question below. What does a student need to understand in order to answer the question?**

*Use a brief sketch to represent an inconsistent 2x2 linear System.*

2. **Consider the question below. What would a correct and complete answer include?**

*A student was solving a 2x2 linear system with the technique of substitution. The student did every step correctly and found themselves with a false statement, such as*

*3=-10*

*What could be a possible graphical representation of the original system? Explain your thinking. Include a brief sketch to support your reasoning.*

3. **How confident are you that you can answer the following question?**

*Not Confident* 1 2 3 4 5 *Confiden*t

*Thinking back over all the linear systems that you have solved – you might have noticed that some linear systems do not have solutions. Explain why this is so. How can you tell that a particular linear system does not have a solution?*

4. What makes a 2x2 linear system easy to solve? What makes solving a linear system hard or confusing?

These four questions led students to identify and relate the intended ideas, concepts, and practical skills of lesson. As you read on there are two other suggestions for small changes with big impact. The next task is designed for an individual student to complete and turn in to the teacher at the beginning of a class. (See Figure 1).

Notice that this task is a reflection on a question about a question. The student is not actually answering a question at all. The student reports their current confidence level. The demand of the task requests the student to reflect and self-monitor confidence about having the skills and understanding to answer a question. This is meant to be a low risk entry point to enter into the consideration of the problem.

There is also intentionality regarding the three selected problems. The three posed questions refer to the one idea of the slope of a line. The intentional focus of one idea and how that one idea is connected to a contextual situation prepares students for the task of actually answering the question “*What do you need to know to be able to solve this question accurately and efficiently*?” in a supportive inquiry based classroom.

After each student answers the confidence questions, each of these problems an instructor can then hand out each question on a separate piece of paper. In the supportive atmosphere of a group, students can generate a list of *“What do you need to know be able to solve this question accurately and efficiently*?” The instructor could use the lists from all the groups to help students form a study plan, or to create a schema to take notes from a textbook or from classroom notes. There are a variety of methods to help students make explicit connections between this activity and the ideas that they need to understand and feel competent and empowered by mathematical strategies.

The individual handout with confidence ratings is on the next page. Masters for the group handouts are included as well.

**1**. Look at the question to the right. How confident are you that you can respond to:

*“What do you need to know be able to solve this question accurately and efficiently*?”

Rate you Confidence

1 2 3 4 5

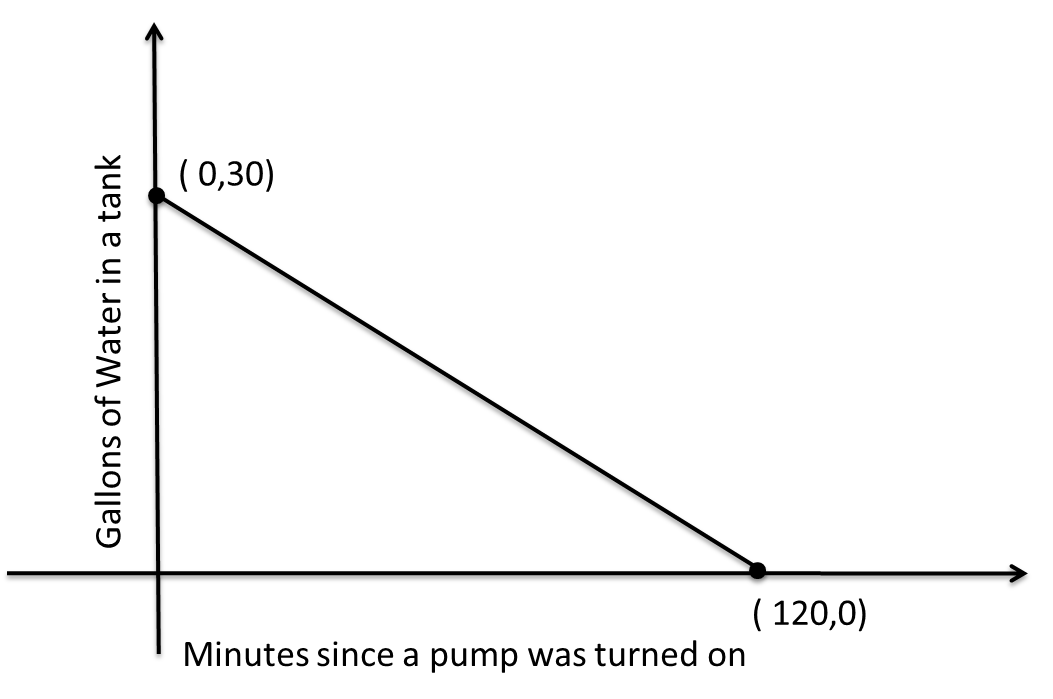
**2.** Look at the question to the right. How confident are you that you can respond to:

“*What do you need to know to be able to solve this question accurately and efficiently*?”

Rate you Confidence

1 2 3 4 5

**Question: What is the slope of this line?**



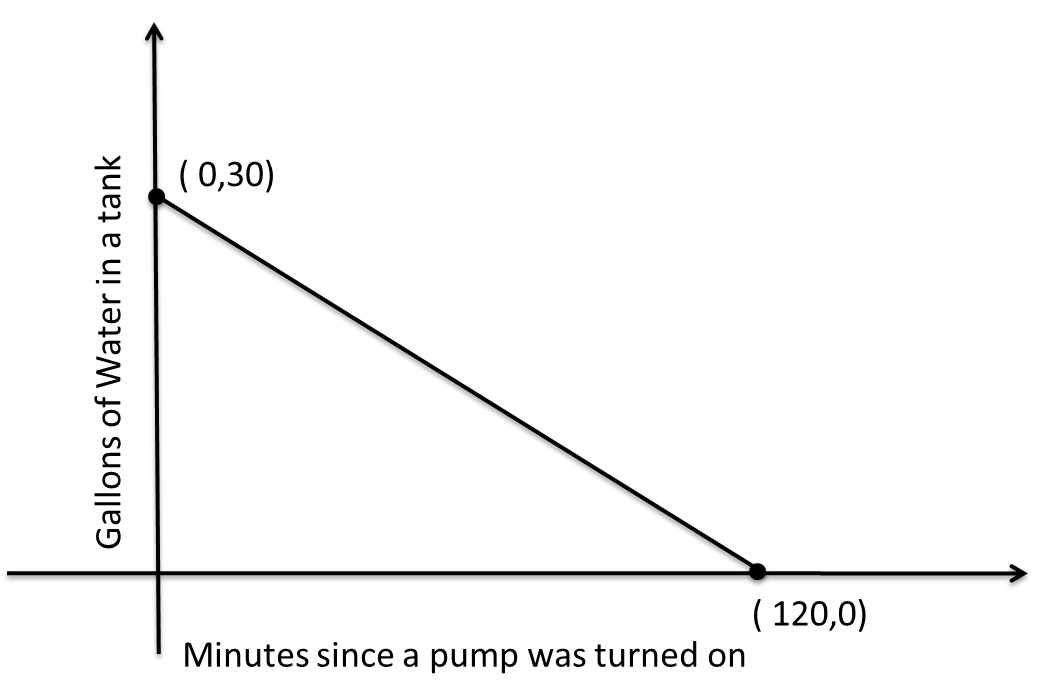
**Question: What rate of change does this line represent? Use units in your answer.**

**3.** Look at the question to the right. How confident are you that you can respond to:

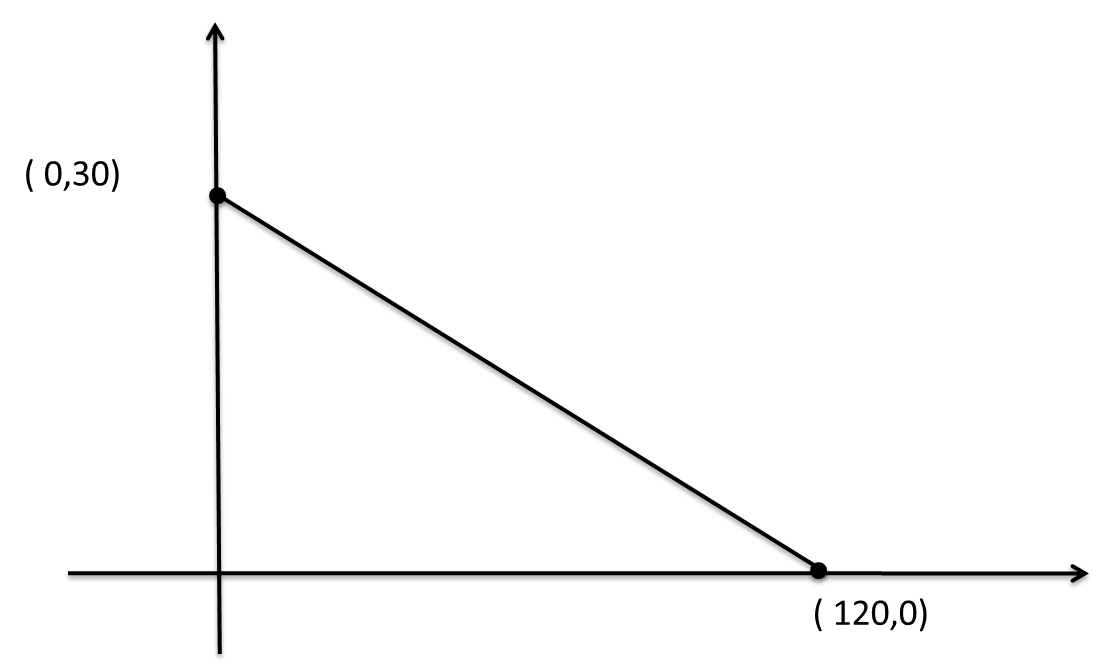
“*What do you need to know to be able to solve this question accurately and efficiently*?”

Rate you Confidence

1 2 3 4 5

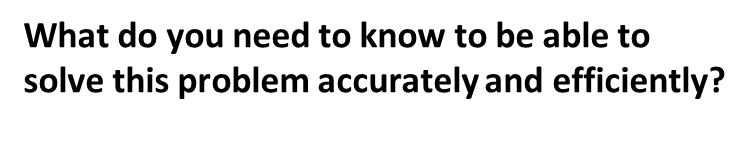


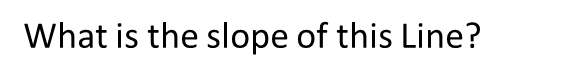
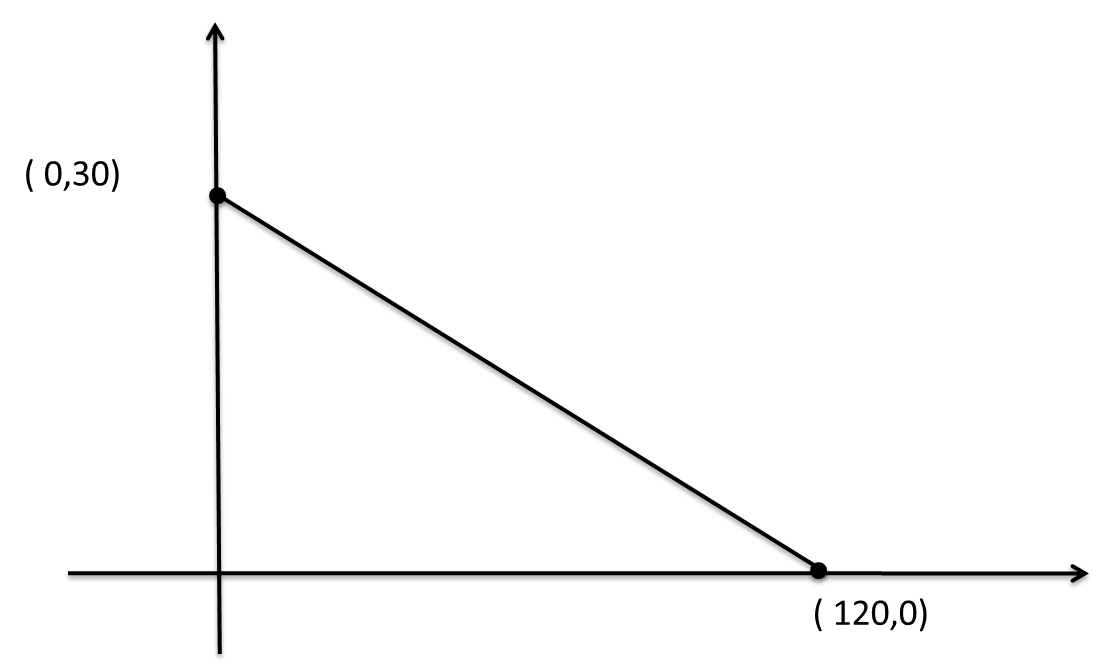
**Question: Consider this line. Write a rate of change story problem that this line could represent.**

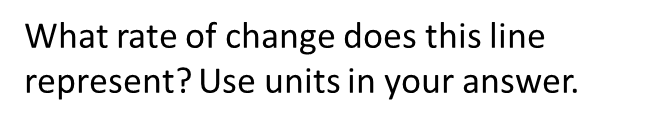
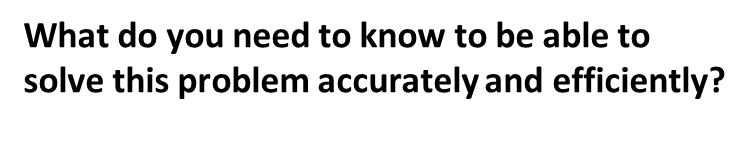
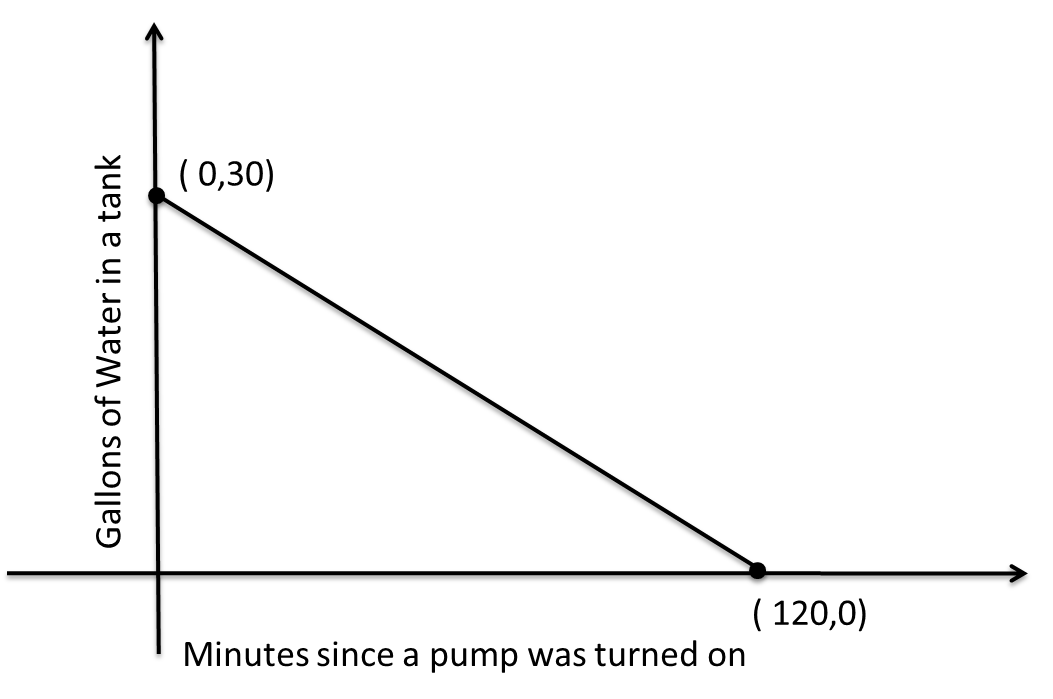


(0, 30)

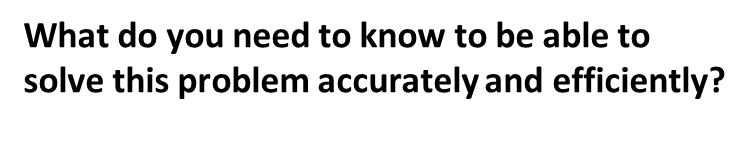
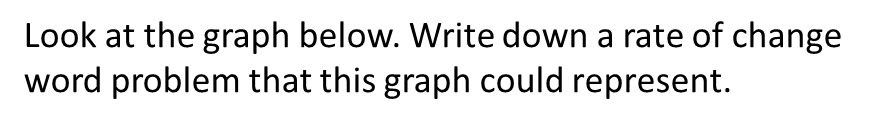
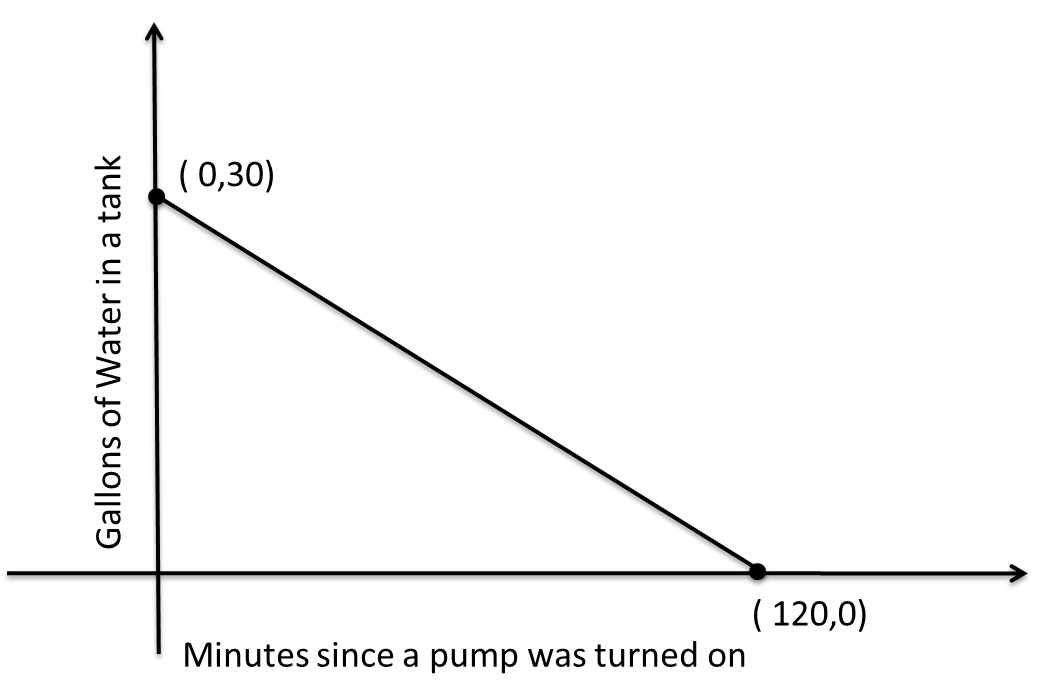
**1**







**2**



**3**

The two ideas introduced so far invite students into activities that call for sense making and communication. The next activity is a longer sequenced mastery task that intentionally provokes struggle and student reflection of how to handle this struggle productively. This activity seems to deal with the elementary algebra task of linear functions. However, faculty experimentation has shown that this task can be used in pre-algebra classes all the way through calculus classes.

The task involves consideration of a graph of four linear functions that represent the gas consumption of four vehicles driving under identical conditions. All numerical information has been initially removed from the graph. This in intentionally done so as to make the problem accessible to anyone, even if they do not have confidence with ordered pairs. The task introduces a questioning and reflection model that could be used throughout a class.

The questioning sequence of:

1. What Can You Determine?
2. What Questions Do You Have?
3. What Else Do you Want to Know?

creates a framework for students as they engage with opened questions. The desiring on the activity support finding out what a student does understand independent of the student’s social knowledge of algebraic notational conventions and definitions.

The sequence of this task ends with a reflection on struggle. This is an attempt of making the strategies of productive struggle visible, transparent, and valued part of learning and doing mathematics. This task can be used at the beginning of a unit as a tool to establish the learning culture of a mathematical classroom. In order for this task to have its full impact, an instructor will need to give students time to process and report out what they notice, and where they are still puzzled. The instructor facilitating this task takes time to note and honor the strategies used by students to engage in the problem.

This section on productive struggle offers an instructor three suggestions to embed the attribute of productive into the classroom while still teaching the content of the math course. Each technique represents a shift in instructor practice and student activity during a math class. The ideas are meant to be used, adapted, and provoke professional discourse of how to improve student success and outcomes in the pre-college math classroom.

Assumptions: Four cars start driving with full tanks of gas on a flat road at a constant rate of 60 miles per hours. All the cars continue until they run out of gas.



Reflection1

Compare your list of determinations with a neighbor.

Answer these three questions together.

1) What can You Determine?

2) What Questions Do You Have?

3) What Else Do You Want to Know?

**Now You Have More Information About One of the Cars.**



**A Second Look**

1. Look at the first graph with the four lines. Consider the data you have for Driver A. Now place ordered pairs on each of the lines that make sense to you given the information you know about Driver A.

2. What can you determine from the graph and your ordered pairs now?

Reflection 2

1. Think about the questions below by yourself for five minutes.

2. Join your group and answer these questions.

3. Write your answers to the first two questions on your group’s poster. Put your answers to the third question on the class question poster.

What are some general ideas about linear graphs do you think you understand now?

What new math skills did you learn while thinking about this problem?

What questions do you have? - Write your group’s questions on the sticky notes provided.

Reflecting back on this task, think about a time where you felt puzzled or frustrated. Thinking about it now, describe what puzzled or frustrated you?

Looking back on the whole process, how did you resolve your puzzled moment or frustration?

What strategies did you use or notice others using to work through the confusion?

What strategies would you recommend to a student taking the course next quarter?

On a separate piece of paper, write a letter to a student that would convince them to use the strategies that you identified?

 .

**Struggling? Great! Learning is Hard.**

Instructor Guide

What can you determine from this graph?

Estimated levels of time and energy required for:

|  |  |
| --- | --- |
| Faculty to prepare this activity: | Medium |
| Students to participate in this activity: | Medium/High |
| Faculty to analyze/process the data collected: | Medium |
| Group Facilitation skills required: | Low |
|  |  |

Description:

This activity allows students to investigate rate of change, x and y intercepts, unit conversion in a problem solving situation. The students will work individually and in groups through a deliberate series of activities to investigate a linear graph that shows the rate of gas consumption of four vehicles under similar circumstances.

Resources Needed:

* Handouts
* Poster or location to post sticky notes
* Sticky Notes

Templates/Handouts Available:

* Class handouts or overheads
* Follow up Activities to extend rate of change concept

Purpose:

This activity is designed for students to gain skills and experience of productive struggle in an engaging applied situation. The open ended activity allows the instructor to gain insight into student strength and weaknesses around linear functions and algebraic skills.

Learning Goals:

* Identify and interpret the rate of change of a linear function in context
* Identify and interpret differences of slopes in context
* Identify the unit rate and relate that to slope
* Compute the rate of change of a linear function in context
* Identify and interpret the and y intercept of a linear function in context
* Identify and interpret the differences of the x and y intercepts of a linear functions in context
* Compute and interpret the x intercept of linear function in context
* Communicate reasoning and problem solving strategies
* Reflect on problem solving strategies and productive struggle

Suggestions for Use:

This activity can serve as an introduction to linear functions. It can serve as a mastery task to start a course. It can also be used in a line unit where the skills of lines have been introduced. It serves as a useful introduction to lines as many terms, vocabulary, and big ideas of a unit are introduced to students as they explain what they can determine about these vehicles. The question can also be revisited throughout a course to deepen concepts and skills.

Step-by-step Procedure:

1. Before class, print out handouts. If you do not want to use a lot of paper, these handouts can be displayed on an overhead and students can start from there.
2. In class, students need to be sitting next to another student so that they can easily talk with a partner. You may use this as a group activity as well. Hand out or display the *What Can you Determine?* And simply ask “What can you determine from this graph?” You might want to read the description of the situation. Then be quiet and let students think individually first and record their own thoughts. **Let the students think. If you need to repeat the initial question, “What can you determine from this graph?”**
3. After individuals have had time to think and write down a few ideas, ask students to pair with another student. Handout or project, *Reflection 1*. Give students time to write down answers.
4. Ask groups to share out recorded responses. You might ask each group to add something new to the lists. When students share, you might ask them, “How can you determine that?”; “Do you know that, or is that a conjecture?”; “How would that information be useful?” This part of the class leads to a discussion about comparative slopes, and y and x intercepts. The instructor can help the discussion by offering some terminology to students. This is not the time however to sum up the rules and procedures around linear functions. This is still a student led inquiry. Useful questions might be “How do you know?”; “How could you verify that?”
5. Hand out or project the *Driver A with Data* sheet. Ask students to think alone first and then pair up. Ask them what they can determine. After individual think time and paired sharing, there can be a group share out as before. When a group shares, ask the rest of the students to then verify the claim. Notice during this time where students are stuck or frustrated.
6. If time allows, hand out or project, *A Second Look*, and repeat procedure. You
7. Hand out or project *Reflection 2*. Give each group of 3-4 a large piece of poster paper, a marker, and post its. Ask students to follow the directions
8. Ask students to reflect on struggle. Hand out *Struggling? Great! Learning is Hard.* Let students fill this out.

Ideas for adapting and expanding this activity:

The three questions, “What can you determine?”; “What Questions do you have?”; What else do you want to know?” could serve as a model of inquiry as the course continues. This activity serves well as a summary activity is you revisit it after instruction. The format of presenting a graph with minimal information and an open ended question can continue throughout the course.

Pros:

* This activity is hands on and invites student to communicate problem solving strategies.
* Students get to hear and think about a variety of strategies of interpreting information from a graph.
* Student prior knowledge is honored and engaged.
* Students get to practice forming questions from information that can be posed as mathematical questions.
* The reflection piece of struggle and strategy is a technique used to support students to adopt strategies to allow “problem solving” and “making sense” of mathematics.
* This activity done as an introduction to a course or a line unit will provide an instructor a lot of information about what students know.

Cons:

* This activity is a long process and the value is in letting students process their thinking. An instructor must devote time to the activity and be willing to let the activity go over two days if the activity is not done.
* This activity requires instructor restraint. If the instructor believes that knowledge is gained be telling students the answers, this activity will clash with that style.
* If you use handouts, you need to have a lot of printing done.
* Students might need encouragement to share their ideas and thoughts about learning.
* It will take time to read student comments and questions and formulate a response

Caveats:

* **This activity can take more than one class period. This activity requires time flexibility.**
* **Print the handouts on different colors. It is easier to refer to the color of a page.**
* **Students might be hesitant to share. Instructors need to be ready to be quiet until someone starts sharing.**
* **This activity might be very inspiring to some students. One student might want to share a lot of information about cars. Be ready to keep an atmosphere where everyone can be heard in class.**

# Lesson Four: Exam Preparation

**Student Prep:** Students respond on an online discussion forum to the following prompt,

*1) How did/will* ***you*** *prepare for this week's math test? (at least two sentences)*

*2) Why do you use the method you described above?*

*3) In your opinion are the following* ***Myths*** *or* ***Truths****:*

*a) Eight hours of sleep the night before the exam is extremely important (so important it makes sense to sacrifice study time for sleep time).*

*b) Students talk about "Blanking Out" during an exam.  This is actually an excuse used by under-prepared students who are looking for something besides themselves to blame for a bad test.*

**Collaborative Lab:** Students are asked to quickly share with their group members about their exam preparation techniques. Most importantly, how they have been preparing for *this* week’s exam. If time allows, groups report out a “best practice” for their group. Students also have time during this section to discuss possible distractions in life that prevent them from using one of the methods described.

**Debrief:** Compile a sample of student responses to the writing prompt. Present this compiled list to the class, read through any interesting, useful, or funny responses. Share thoughts on exam preparation with students using the “Helpful Hint” document below. Remind them that these thoughts are based on research and authors that have spent a lot of time investigating this subject. Spend time talking about Test Taking Anxiety and how it can be managed. This conversation originates from question 3b of the discussion board response.

Test Preparation Checklist

***Type of Exam: What I need when I study:***

Multiple Choice \_\_\_\_\_ Textbook(s) \_\_\_\_\_

True/False \_\_\_\_\_ Notes \_\_\_\_\_

Matching \_\_\_\_\_ Instructor’s Study Guide \_\_\_\_\_

Completion \_\_\_\_\_ Worksheets \_\_\_\_\_

Identification \_\_\_\_\_ Past Exams (scoops) \_\_\_\_\_

Essay \_\_\_\_\_ Supplemental Readings \_\_\_\_\_

Lab work \_\_\_\_\_ Calculator \_\_\_\_\_

Problems \_\_\_\_\_ Pen, pencil, extra paper \_\_\_\_\_

Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Will I study alone or with a study group? \_\_\_\_\_ ***Alone*** \_\_\_\_\_ ***Group\****

\*Make sure your group is more study than social. Set an agenda and stick to it.

Are there any study/review sessions the instructor will lead before or after class? \_\_\_***Y*** \_\_\_***N***

If Yes, when and where? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When and where will I study? Make a plan – and stick to it!

Date/Time/Place: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date/Time/Place: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date/Time/Place: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mark these dates in your planner.

**Prioritization:** What topics will the exam cover?



Predict some test questions (this will force you to focus on key concepts the instructor has been stressing).

**Concept: Test Question:**

1.

2.

3.

4.

***What I need for test day:***

Pens, pencils, extra paper (graph, lines, etc) \_\_\_\_\_

Calculator \_\_\_\_\_\_

Notes – can I use my notes during the test? \_\_\_\_\_\_

Textbook – is the test open book? \_\_\_\_\_\_

Ruler \_\_\_\_\_\_

Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Helpful Tips**

***On Preparation:***

* You will be asked to complete problems yourself, not watch someone else complete them.
* If you practice sprinting, what makes you think you can run a marathon?
* Sleep = Organization of Knowledge. Problem-solving requires a *fresh* state of mind.
* New knowledge, to be useful, must be learned one full day before an exam.

***On Test-Taking:***

* Be efficient! Don’t perform problems in order listed on exam!
* DATA DUMP!
* Using a pen or erasing massive chunks of work is a waste of time.
* “Fight or Flight” is real and manageable.

***Relaxation Techniques to manage test anxiety (must be practiced to be useful):***

The Turtle

* Sit up straight
* Let chin fall to chest as you exhale
* Inhale, move head back slowly as though you are trying to touch the back of your neck with head
* Pull shoulders up to ears
* Release

Countdown

* Count backwards from 10
* Take a breath before each number
* Say each number silently as you exhale
* *Notice that with each number you relax and slow down slightly*
* Add imagery if necessary (ie. decreasing on an Anxiety Scale)
* At end, inhale and count to three to resume

# Lesson Five: Error Analysis

**Objectives:**

Students will be able to examine assessments for errors and categorize the type.

Students will reflect on their development as learners throughout the math class.

***CRS Students Attributes***

Takes responsibility for own learning.

Pays attention to detail.

**Purpose:**

Too often students look at a grade on the top of an exam and then file the test away. Instructors hope that students analyze the assessment further in order to understand the types of errors that they have made in order to make them more efficient in focusing on areas of improvement. This lesson gives a structure to this process as well as a final reflective activity for students to complete.

**Brief Description of Activity:**

1. Students will brainstorm common types of errors made in math classrooms.
2. Groups will examine student work to categorize types of errors.
3. Students will individually categorize and reflect on their own errors on a returned assessment. (This can be done multiple times in the quarter.)
4. Students will reflect on their development as math learners by examining error analysis documents from the entire quarter. (This could be a component of a final portfolio.)

**Materials Needed:**

1. Six Types of Test Taking Errors
2. Exam Analysis worksheets (one for each exam)

**Sequencing Recommendations:**

Brainstorming and categorizing activities could occur either immediately before or after the first exam. Exam analysis would be completed after an assessment was returned, and this activity can be repeated throughout the quarter. Final reflection would take place towards the end of the quarter.

**Estimated Time For Completion:**

Initial activity could take between 30 minutes and one hour. Other activities would be completed by students outside of class.

**Research/Resources:**

**SIX TYPES OF TEST TAKING ERRORS**

By identifying the types of errors you make most consistently, you are able to edit for those errors before turning in a test or an assignment. This allows you to be more efficient in focusing on areas for improvement. You may wish to analyze your errors by using the chart which follows the description of types of errors. You might print this form out to get started, and design your own chart in the future.

* **Misread direction errors-** these errors occur when you skip directions or misunderstand directions, but answer the question or do the problem anyway.
* **Careless errors-** mistakes made which can be caught automatically upon reviewing your work.
* **Concept errors-** mistakes made when you do not understand the properties or principles covered in the textbook and lecture.
* **Application errors-** mistakes that you make when you know the concept but cannot apply it to a specific situation or question.
* **Test-taking errors-** mistakes that you make because of the specific way you take tests, such as:
* Missing more questions in the 1st-third, 2nd-third, or last-third of a test
* Not completing a problem to its last step or not answering a question fully.
* Changing test answers from the correct ones to the incorrect ones
* Getting stuck on one problem or question and spending too much time.
* **Study errors-** mistakes that occur when you study the wrong type of material or do not spend enough time studying pertinent material.

**Exam Analysis**

*Analyze your returned exam to categorize the types of errors that you made by filling in the table below.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Type of Error** | | | | | |
| Question #  Missed | Misread directions | Careless | Concept | Application | Test -taking | Study |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |

* What is the **most common** type of error that you made?
* Think about the resources you used in preparing for the exam. What helped you the most? (Check as many as you want.)

\_\_\_\_\_\_ My notes

\_\_\_\_\_\_ My homework

\_\_\_\_\_\_ Tutoring sessions

\_\_\_\_\_\_ My study sessions

\_\_\_\_\_\_ My study group

\_\_\_\_\_\_ My study environment

\_\_\_\_\_\_ Other

* My major weakness(es):

\_\_\_\_\_\_ Ran out of time during test

\_\_\_\_\_\_ Did not expect what was on exam

\_\_\_\_\_\_ Studied wrong material

\_\_\_\_\_\_ Did not start studying early enough

Grade I **expected** to receive \_\_\_\_\_ Grade I **actually** received \_\_\_\_\_

Answer the following questions (honestly). Circle your response, yes or no, to each question.

1. **YES NO** Did you complete the assigned homework?

2. **YES NO** Did you attend every class session before the test?

3. **YES NO** Were you on time to class and prepared with your paper, pencil, calculator, and textbook when class began?

4. **YES NO** Did you take thorough class notes, recording what the instructor wrote and said, including all the examples?

5. **YES NO** Did you complete your practice exercises as soon after class as possible?

6. **YES NO** Did you ask questions on practice exercises or about concepts that you did not understand?

7. **YES NO** Did you have a regular time and place to do your math studying?

8. **YES NO** Did you use additional resources in your studying (such as web resources, tutoring center, other classmates, etc)?

9. **YES NO** Did you actually study for the exam by working problems from the book and your notes?

10. **YES NO** Did you take care of your body by eating nutritiously and getting sufficient rest during the week before and the day of the test?

11. **YES NO** Did you consciously relax during the exam?

These questions point to possible changes you can make before your next exam. List at least three specific things that you will do differently before the next exam. Explain HOW and WHEN you will do them.

1.

2.

3.

**Error Analysis Wrap-up (used at the end of the term)**

*Review each of your Exam Analysis reflections that you completed throughout the quarter. Look for trends and answer the following questions.*

1. Did your error analysis tables for each exam look similar or did they change as the quarter progressed?

2. What did you learn about the kinds of errors that you make on assessments?

3. What changes in your study or test taking habits did you make as the quarter progressed based on your error analysis forms?

4. How can error analysis be beneficial to learning?

# LESSON SIX: TIME MANAGEMENT

To help students adjust to the expectations of college, a task that really resonates with students (after the fact) is a time management exercise where they totaled their hours in 9 different categories for each day for seven days.  Afterward they are asked to reflect on the results.  Many students are grumpy about this assignment at first but are surprised by what the learned (i.e. that many of them do have time or could shift their priorities to make time) and mentioned how useful it was to them.  
  
Time Management Exercise from Cook Counseling Center at Virginia Tech:   
<http://www.ucc.vt.edu/stdysk/tminteractive.html>  
  
After tracking and totaling their hours students were asked to respond to the following:

1. Do you think you have enough time left in the week to cover all the work needed for school? Why - or why not?

2. Based on the remaining time, what do you see as the maximum number of credit hours you should take?

3. If you need to adjust the time you spend on the different activities, what could you sacrifice if you needed to spend more time on school?

4. And if you believe you have enough room in your schedule for the classes you are taking, what challenges do you think you may face with respect to balancing your schedule?

# LESSON SEVEN: PORTFOLIOS

**Cover Sheet for Math Portfolio**

**Contents:**

1. ***Goals***

a. Original goals paper

b. Mid-term discussion – Revision and Self-evaluation of Goals

b. Final revision; reflect on how you have met (or not) your goals and/or how your goals have changed.

2. ***Copies of your Exam Analysis sheets for Exams I, II, III and IV***

For each of these exams you have been asked to complete not just an exam analysis sheet but to re-work the exam problems that you missed points on. Include all of the exams with attached exam analysis sheets.

**3. *End of term Exam Analysis***

This is where you get a chance to look back on all of your exams and reflect on your analysis of how you changed your test taking strategies. Did the types of errors you made change? Did the number of errors change? Or did anything change?

4. ***An example of class notes from two days this quarter (your choice – make it your best work!)*** Reflect on why your note taking technique is working for you, and whether you have changed the way you take notes. Reflect on whether you think taking notes has helped you in this class.

5. ***A statement about how you “get unstuck” when it comes to a difficult problem. We have had lots of opportunities this quarter to discuss this!***

Think about it…there have been a few times in this class where you and/or your group have been a little perplexed about some process…how did ***you*** gain confidence and work through this? Think about our discussions in class about getting “unstuck” in different topic areas.

This section could include copies of productive struggle protocol and feedback handouts

6. Include examples of homework problems that you have worked out. I will provide the specific problems. Show not just your work but the annotated steps for the problem “(as may have been practiced in class with a certain technique – see appendix “Documented Problem Solutions”)”

7. ***Finally, reflect on how you think math (not just this class but all math, past, present, future) will help you accomplish your goals?*** Write a paragraph or two in which you reflect back on your goal statement.

If you hand-write materials they must be very neat (so I can read them).

**DUE DATE:**

# LESSON EIGHT: ANXIETY CONTROL

***MATH ANXIETY SELF TEST***

**Rate your answers from 1 to 5; add them up and check your score below.**

**(1) = Disagree, (5) = Agree.  
1 2 3 4 5**

1. I cringe when I have to go to math class.
2. I am uneasy about going to the board in a math class.
3. I am afraid to ask questions in math class.
4. I am always worried about being called on in math class.
5. I understand math now, but I worry that it's going to get really difficult soon.
6. I tend to zone out in math class.
7. I fear math tests more than any other kind.
8. I don't know how to study for math tests.
9. It's clear to me in math class, but when I go home it's like I was never there.
10. I'm afraid I won't be able to keep up with the rest of the class.

**CHECK YOUR SCORE**:

**40-50**  Sure thing, you have math anxiety.   
**30-39**  No doubt! The thought of doing math still makes you uneasy.  
**20-29**  Perhaps!

**10-19**  Wow! Possibly a math major in the making!

Math anxiety is an emotional reaction to mathematics based on a past unpleasant experience which harms future learning. A good experience learning mathematics can overcome these past feelings and success and future achievement in math can be attained.

<http://www.mathpower.com/anxtest.htm>  
Created by Dr. Ellen Freedman

**Anxiety**

Anxiety can be broken down into two fields: test anxiety and mathematics anxiety. When combined they can be deadly to a student’s G.P.A and self-esteem.

What is anxiety? Anxiety is stress, tension and strain brought onto one’s body and mind. Anxiety can be broken down into two types:

**Somatic** – loss control of body, some symptoms are sweaty palms, pain in neck or sick to the stomach.

**Cognitive**- loss of concentration, some of the symptoms are negative self-talk, feelings of doubt, or mind wanders from test.

**Test Anxiety** is a learned behavior that can be unlearned. The following methods often create test anxiety:

* Parents, friends or teachers may pass their bias to the student.
* Student may believe there is a connection between grade and self-worth.
* Fear of alienating parents, family or friends due to poor grades.
* Anxiety may be due to not feeling that they are not in control.

**Mathematics anxiety** can be extreme; often caused by having a negative attitude due to a previous bad experience. Studies show that one-half of all students in a developmental mathematics class suffer forms of this type of anxiety. The good new is that a student can manage this behavior but they must learn to manage **BOTH** the stress as well as improve the basic mathematic skills.

Paul D. Noting, Ph.D. Learning Specialist

*Winning at Math; your guide to learning mathematics through successful study skills.*

Academic Success Press, INC. 1991

**Ten Ways To Reduce** **Math Anxiety**

**1. Overcome negative self-talk.  
2. Ask questions.  
3. Consider math a foreign language -- it must be practiced.  
4. Don't rely on memorization to study mathematics.  
5. READ your math text.  
6. Study math according to** [**YOUR LEARNING STYLE**](http://www.mathpower.com/brain.htm)**.   
7. Get help the same day you don't understand.  
8. Be relaxed and comfortable while studying math.  
9. "TALK" mathematics.  
10. Develop responsibility for your own successes and failures.**

Math Anxiety Test (from Heidi Ypma)

I start my beginning algebra class by asking students to provide some basic information about their math background and past experiences in math. I specifically ask them to share one experience they remember best and why and tell them it can be either a positive or negative experience. I was always amazed at how many negative responses I received from my students and how fearful they were of math. Several years ago I ran across Dr. Freedman's website and began using the Math Anxiety Self Test that she had created in addition to my information sheet.

I have students number 1-10 on the back of the information sheet and then project the Math Anxiety Self-Test on the screen using a document camera. I do not hand out the test. I encourage students to go with their first reaction and uncover one statement at a time. I read each statement through twice before moving on to the next one. Students then tally up their scores ( it is always nice to do some math the first day!) and have them write their score on a blank provided on the front of their information sheet. I then uncover the "check your score" part of the paper so students immediately see where they fall on the scale and then I collect up the sheets. Finally I share with them the statement at the bottom of the page and emphasis my commitment to providing them with a positive learning experience in the class.

After reviewing and tallying the scores, I share the results in class the next day. I usually find that, on average, roughly half the class will score above a thirty on this self-test. This allows me to inform the class that the probability that they are sitting next to someone who also experiences some anxiety over math is quite high. I find it really helps the students relax.

**CHOICES OF SUCCESSFUL STUDENTS**

|  |  |
| --- | --- |
| **SUCCESSFUL STUDENTS** | **STRUGGLING STUDENTS** |
| 1. …accept **PERSONAL RESPONSIBILITY**,   seeing themselves as the primary cause of their outcomes and experiences. | 1. …see themselves as Victims, believing that what happens to them is determined primarily by external forces such as fate, luck, and powerful others. |
| 2. …discover **SELF-MOTIVATION**, finding purpose in their lives by discovering personally meaningful goals and dreams. | 2. …have difficulty sustaining motivation, often feeling depressed, frustrated, and/or resentful about a lack of direction in their lives. |
| 3…master **SELF-MANAGEMENT**, consistently planning and taking purposeful actions in pursuit of their goals and dreams. | 3…seldom identify specific actions needed to accomplish a desired outcome, and when they do, tend to procrastinate. |
| 4…employ **INTERDEPENDENCE**, building mutually supportive relationships that help them to achieve their goals and dreams while helping others to do the same.. | 4…are solitary, seldom requesting and even rejecting offers of assistance from those who could help. |
| 5…gain **SELF-AWARENESS**, consciously employing behaviors, beliefs, and attitudes that keep them on course. | 5…make important choices unconsciously, being directed by self-sabotaging habits and outdated life scripts. |
| 6…adopt **LIFE-LONG LEARNING** as a life-goal, finding valuable lessons and wisdom in nearly every experience they have. | 6…resist learning new ideas and skills, viewing learning as fearful or boring rather than as mental play. |
| 7…develop **EMOTIONAL INTELLIGENCE**, effectively managing their emotions in support of their goals and dreams. | 7…live at the mercy of strong emotions such as anger, depression, anxiety, or a need for instant gratification. |
| 8…**BELIEVE IN THEMSELVES**, seeing themselves as capable, lovable and unconditionally worthy human beings. | 8…doubt their competence and personal value, feeling inadequate to create their desired outcomes and experiences. |

**APPENDIX**

1. **Classroom Assessment Techniques (CATs)**
2. **Ideas for Building Resiliency**
3. **Tips on Studying Math**
4. **Building Resiliency**
5. **Six Habits of Strategic Thinkers**
6. **Seven Ways to Effect Change**
7. **FUndamentalAttribution Error**

**Why use a CAT (Classroom Assessment Technique)?**

The following examples are formative assessment. The point is to customize classroom instruction to benefit the students in your class, to maximize the minutes in class to the greatest benefit. That part is for the student. For us, we need to help students to develop the capacity to ask questions. If we use these particular CATs on a regular basis, (1) it’s less threatening, (2) the begin to reflect on their learning, and (3) tend to get better about articulating what it is they know AND what they don’t know. Students will always use prior knowledge in the formation of their response. Formative assessments shift the attention to what students are saying.

**Feedback form – for the instructor**

1. Topic of the day

2. Which CAT did you use?

3. How did the students react?

4. How did this inform your practice?

**MINUTE PAPER**

***Directions:*** In a single well-constructed sentence, provide the following information to these questions:

1. **What was the most important thing you learned from today’s lesson?**
2. **What important question remains unanswered?**

**MUDDIEST POINT**

***Directions:*** As specifically as possible, complete the following statement:

After today’s lesson, I am ***still*** confused about:

**DOCUMENTED PROBLEM SOLUTIONS**

**Directions:** On the left side of this sheet, solve the problem using the techniques you have learned in class. On the right side of the worksheet, explain the reasoning that you used to reach your solution in a step-by-step approach. For example, you might say: I used the distributive property to simplify.”

**1. Problem: Documentation**

***Step 1:***

***Step 2:***

***Step 3:***

## TIPS ON STUDYING MATH

### READ CAREFULLY AND SLOWLY

In math you must read slowly and absorb each word.  Often it is necessary to read a discussion or problem many times before it begins to make sense.  Each word and symbol is important and many thoughts are condensed into just a few statements.

### THINK WITH PENCIL AND SCRATCH PAPER

Always have a pencil in hand and scratch paper ready.  Test out the ideas you are reading.  When a question is asked try to answer it before going on.  Try to completely work out the solved examples before you read them.  After you have read and re-read a problem carefully and still don’t see what to do, don’t continue to sit and look at it.  Get your pencil going on the scratch paper and try to “dig it out.”  Until you have something on paper you have not exerted enough effort to justify quitting or seeking help.

**BE INDEPENDENT, BUT DON’T BE AFRAID TO ASK QUESTIONS**

Try to complete the assignments at first without assistance.  If you seek help too soon, either from your instructor or classmate, you will not gain the maximum benefit from your work.  ON the other hand, you must ask questions and get help when necessary. Sometimes little things cause considerable confusion.  Do not be afraid your question will sound dumb.  Some people seek help too soon, and others wait too long.  You must use your good common sense in this matter.

### LISTEN IN CLASS

The fundamental principles and ways of thinking, as well as many of the finer points, will be developed in class.  You must pay careful attention to these discussions in order to really understand what is going on.

### PERSEVERE

Do not be surprised if a topic or problem completely baffles you at first.  Stay with it.  One characteristic of learning math is that at one moment you may feel completely at a loss, and then suddenly have a burst of insight that enables you to understand things perfectly.

### TAKE TIME TO REFLECT

To learn mathematics you must take time to think back over the material covered.  It takes time for many ideas to sink in and become a part of you.

### CONCENTRATE ON FUNDAMENTALS

Do not try to learn math by memorizing formulas and examples.  Most mathematics is based on a few fundamental principles and definitions.  If you concentrate on these fundamentals and try to see how each new topic is simply another application, you will need to memorize very little new material.

**BE NEAT AND ACCURATE**

These are the habits that will save you frustration, and you must deliberately practice them to make them into habits.  Keep your work organized.

**DO THE WORK AND DO IT ON TIME**

You must do all the assignments regularly and make up any work you miss when you are absent.  No excuses!  Don’t wait until the last minute and then try to rush through the assignments.  If you spend just enough time on your lesson to get the answers, but do not take time to really understand the underlying principles, you will soon become confused.

**FINALLY…….**

Math is not an activity for the intellectually lazy.  It requires a strong, steady effort.  There is no other way to learn.  Neither is math a spectator sport, you must become actively involved.  Do not expect to learn by sitting by and watching the instructor do the work.  This will keep the instructor in good condition, but it won’t do you much good.

## Ideas for building resiliency in the classroom

## Provide caring and support

* Create an environment that welcomes students, staff and visitors
* Experiment with longer instructional periods
* Have flexible daily routines
* Emphasize growth and motivation over compliance and minimally acceptable behavior
* Emphasize cooperation and caring, celebrations and rites of passage
* Encourage reaching out to get and give help when needed
* Leaders should make an effort to be a positive presence in the school
* Use creative efforts to secure resources, and distribute them fairly and equitably
* Create mentoring programs for staff as well as students
* Hold information and orientation nights for new students and their families
* Develop supportive partnerships with the community

## Set and communicate high expectations

* Encourage students to aspire to higher achievements
* Have high (but realistic) expectations for academic achievement
* Emphasize challenge and opportunity rather than control and discipline
* Foster a "can do" attitude at the school
* Encourage all organization members to develop growth plans
* Establish regular review procedures
* Provide opportunities for supportive and corrective feedback
* Facilitate cooperative learning opportunities
* Celebrate progress and achievements
* Tell stories that emphasize effort and success
* Provide professional development opportunities that focus on resiliency, both in teaching and personally

## Provide opportunities for meaningful participation

* Include students in site-based management and interview teams for personnel selection
* Experiment with classroom-based decision-making
* Shift reward system to emphasize cooperative rather than individual efforts
* Change the perception of students as clients to one of partners; of teachers to one of coaches
* Involve students in planning and holding information nights and other school events
* Help people believe that what they're doing really matters
* Challenge everyone to contribute to his or her fullest capacity
* Be aware of how the overall organizational dynamic affects individuals' futures
* Create the freedom to question assumptions
* Treat each other with respect
* Encourage experimentation and risk-taking

## Increase pro-social bonding

* Model preferred behaviors
* Encourage a positive climate characterized by respect, trust, growth, cohesiveness, caring, support and challenge
* Articulate a vision or mission
* Promote shared values
* Emphasize aspects of the school's history that support the vision or mission
* Develop rituals and ceremonies that celebrate desired behaviors

## Set clear and consistent boundaries

* Define boundaries that promote cooperation, support and a sense of belonging to something bigger than oneself.
* Initiate school wide efforts to explore and clarify visions, missions and goals
* Select staff based upon agreement with mission and goals
* Provide clearly stated, regularly communicated and widely supported expectations for academic and social behavior
* Include resiliency-building in the school's mission and goals

## Teach life skills

* Make effective efforts to improve the school
* Support risk-taking leading to individual and group skill development
* Monitor the environment and respond to challenges positively and creatively
* Offer opportunities for critical thinking and effective problem-solving
* Encourage cooperative behaviors
* Dedicate a few minutes at each department meeting to share resiliency-building stories, information, strategies and ideas
* When discussing specific students with other staff, focus as much on strengths as on challenges
* Add a list of personal resiliency builders to student assessment forms
* Create a fax cover sheet that has a resiliency-building message
* Leave a message about resiliency building on your voice mail
* Use resiliency as part of performance planning and evaluation
* Print resiliency-building tips on pay stubs and in teacher announcements
* Take pictures at student events; make double copies and give them to students
* Recruit community groups and individuals to volunteer time and develop supportive relationships with students
* Share with the media the good things students and staff are doing
* Make liberal use of humor
* Pay attention to and nurture your own resiliency

**6 Habits of True Strategic Thinkers**

You're the boss, but you still spend too much time on the day-to-day. Here's how to become the strategic leader your company needs.

In the beginning, there was just you and your partners. You did every job. You coded, you met with investors, you emptied the trash and phoned in the midnight pizza. Now you have others to do all that and it's time for you to "be strategic."

Whatever that means.

If you find yourself resisting "being strategic," because it sounds like a fast track to irrelevance, or vaguely like an excuse to slack off, you're not alone. Every leader's temptation is to deal with what's directly in front, because it always seems more urgent and concrete. Unfortunately, if you do that, you put your company at risk. While you concentrate on steering around potholes, you'll miss windfall opportunities, not to mention any signals that the road you're on is leading off a cliff.

This is a tough job, make no mistake. "We need strategic leaders!” is a pretty constant refrain at every company, large and small. One reason the job is so tough: no one really understands what it entails. It's hard to be a strategic leader if you don't know what strategic leaders are supposed to do.

After two decades of advising organizations large and small, my colleagues and I have formed a clear idea of what's required of you in this role. Adaptive strategic leaders — the kind who thrive in today’s uncertain environment – do six things well:

* 1. **Anticipate**

Most of the focus at most companies is on what’s directly ahead. The leaders lack “peripheral vision.” This can leave your company vulnerable to rivals who detect and act on ambiguous signals. To anticipate well, you must:

Look for game-changing information at the periphery of your industry

Search beyond the current boundaries of your business

Build wide external networks to help you scan the horizon better

* 1. **Think Critically**

“Conventional wisdom” opens you to fewer raised eyebrows and second guessing. But if you swallow every management fad, herd-like belief, and safe opinion at face value, your company loses all competitive advantage. Critical thinkers question everything. To master this skill you must force yourself to:

Reframe problems to get to the bottom of things, in terms of root causes

Challenge current beliefs and mindsets, including your own

Uncover hypocrisy, manipulation, and bias in organizational decisions

* 1. **Interpret**

Ambiguity is unsettling. Faced with it, the temptation is to reach for a fast (and potentially wrongheaded) solution. A good strategic leader holds steady, synthesizing information from many sources before developing a viewpoint. To get good at this, you have to:

Seek patterns in multiple sources of data

Encourage others to do the same

Question prevailing assumptions and test multiple hypotheses simultaneously

* 1. **Decide**

Many leaders fall prey to “analysis paralysis.” You have to develop processes and enforce them, so that you arrive at a “good enough” position. To do that well, you have to:

Carefully frame the decision to get to the crux of the matter

Balance speed, rigor, quality and agility. Leave perfection to higher powers

Take a stand even with incomplete information and amid diverse views

* 1. **Align**

Total consensus is rare. A strategic leader must foster open dialogue, build trust and engage key stakeholders, especially when views diverge. To pull that off, you need to:

Understand what drives other people's agendas, including what remains hidden

Bring tough issues to the surface, even when it's uncomfortable

Assess risk tolerance and follow through to build the necessary support

* 1. **Learn**

As your company grows, honest feedback is harder and harder to come by. You have to do what you can to keep it coming. This is crucial because success and failure--especially failure--are valuable sources of organizational learning. Here's what you need to do:

Encourage and exemplify honest, rigorous debriefs to extract lessons

Shift course quickly if you realize you're off track

Celebrate both success and (well-intentioned) failures that provide insight

Do you have what it takes?

Obviously, this is a daunting list of tasks, and frankly, no one is born a black belt in all these different skills. But they can be taught and whatever gaps exist in your skill set can be filled in. I'll cover each of the aspects of strategic leadership in more detail in future columns. But for now, test your own strategic aptitude (or your company's) with the survey at www.decisionstrat.com. In the comments below, let me know what you learned from it.

**SEVEN WAYS TO EFFECT CHANGE**

Looking to influence a colleague? Put these mind-changing tools in your arsenal.

It’s very difficult to change the minds of adults on any issue of significance, says author and Harvard psychologist Howard Gardner. But the highest probability of a lasting change of opinion comes with the first six “levers” below are in concert, and the seventh factor, resistance, is low.

1. **REASON** The rational approach, involving identifying relevant factors and weighing them. This lever is especially important among those who deem themselves to be educated.
2. **RESEARCH** Complementing the use of rational argument is the collection of data, which is used to test trends or assertions.
3. **RESONANCE** Whereas reason and research appeal to the cognitive mind, resonance refers to emotions. An opinion or idea resonates when it just “feels right” to a person.
4. **REPRESENTATIONAL REDESCRIPTIONS** The repetition of a point of view in many different forms – linguist, numerical or graphic – to reinforce the message is one of the most important levers for changing peoples’ minds.
5. **RESOURCES AND REWARDS** Money and other resources can be applied directly (as a bonus, for example) or indirectly (as a donation to a charity as long as the philanthropist’s wishes are adopted). Unless resources and rewards work together with other mind-changing levers, a new course of thought is unlikely to last when money runs out.
6. **REAL-WORLD EVENTS** The use of news stories and events to bolster one’s perspective can be effective in changing minds. Some real-world events can affect so many people so deeply that they cause a mass change of mind.
7. **RESISTANCES** Barriers to changing one’s mind are created by age (as people get older, their neural pathways are less susceptible to alteration), the emotion that a topic creates and the public stand one has previously taken on a topic.

**Fundamental Attribution Error**

## Description

When we are trying to understand and explain what happens in social settings, we tend to view behavior as a particularly significant factor. We then tend to explain behavior in terms of internal disposition, such as personality traits, abilities, motives, etc. as opposed to external situational factors.

This can be due to our focus on the person more than their situation, about which we may know very little. We also know little about how they are interpreting the situation.

Western culture exacerbates this error, as we emphasize individual freedom and autonomy and are socialized to prefer dispositional factors to situational ones.

When we are playing the role of observer, which is largely when we look at others, we make this fundamental attribution error. When we are thinking about ourselves, however, we will tend to make situational attributions.

## Research

Edward Jones and Victor Harris (1967) asked people to assess a person’s pro- or anti-Castro feelings given an essay a person had written. Even when the people were told the person had been *directed* to write pro- or anti- arguments, the people still assumed the author believed what they were writing.

## Example

I assume you have not done much today because you are lazy, rather than perhaps tired or lack the right resources.

## So what?

### Using it

Beware of people blaming you for things outside of your control. Also watch out for people doing it to you. You can make friends and build trust when individuals are blamed by others, by showing that you understand how it is not to do with their personality.

### Defending

Watch how others make attributions. When they seem to go against the trend and be in your favor, be curious about their motives.

## See also

[Actor-Observer Difference](http://changingminds.org/explanations/theories/actor_observer.htm), [Attribution Theory](http://changingminds.org/explanations/theories/attribution_theory.htm), [Correspondence Bias](http://changingminds.org/explanations/theories/correspondence_bias.htm), [Correspondent Inference Theory](http://changingminds.org/explanations/theories/correspondent_inference.htm), [Covariation Model](http://changingminds.org/explanations/theories/covariation_model.htm), [Positivity Effect](http://changingminds.org/explanations/theories/positivity_effect.htm), [Ultimate Attribution Error](http://changingminds.org/explanations/theories/ultimate_attribution_error.htm)

## References

[Heider (1958)](http://changingminds.org/explanations/theories/academic_references.htm#Heider%20%281958%29), [Ross (1977)](http://changingminds.org/explanations/theories/academic_references.htm#Ross%20%281977%29), [Jones and Nisbett (1972)](http://changingminds.org/explanations/theories/academic_references.htm#Jones%20and%20Nisbett%20%281972%29), [Jones and Harris (1967)](http://changingminds.org/explanations/theories/academic_references.htm#Jones%20and%20Harris%20%281967%29)

Great podcast from American RadioWorks...  
<<http://americanradioworks.publicradio.org/podcast.html>>  
  
March 2, 2012  
Are You Gritty Enough For College?  
  
Why do some students drop out of college, while others persist? Researchers  
 think it may have something to do with a person's level of "grit" and are  
trying to figure out whether this trait can be taught to others.  
  
Guest: Angela Duckworth, Assistant Professor, University of Pennsylvania  
Department of Psychology.

Video – How do you have a successful finals week?

<http://ctl.byu.edu/learning-tips/how-do-you-have-successful-finals-week>